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ABSTRACT

These four research reviews should be useful to educators concerned with developing and improving vocational education programs. Reviews include: (1) "Occupational Training Information System" (OTIS) which is concerned with a decision making model for state and local programs and with responsive vocational and technical education, (2) "Career Ladders In The Foodservice Industry," including what one industry can do to cut down on excessive and costly turnover, provide better service, and more fully hold and utilize its personnel, (3) "The HEART Report--A Household Employment Training, Counseling, Job Development and Placement Program," and (4) "A National Study Of Assisting Manpower In Optometry," including an investigation of job availability, duties, education, and training of ancillary optometric personnel and the forecasting of the demand for such employees. A bibliography of additional studies and ordering information for cited materials are included. (JS)

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Manpower Research Visibility

Bridging the gap between researcher and practitioner by providing: interpretation and synthesis of manpower research and experimentation and development projects relevant to vocational-technical and practical arts education.

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This management information system for statewide manpower planning contains a decision making model for state and local programs and responsive vocational and technical education. OTIS holds implications for other states and illustrates a method for continuously and systematically obtaining enrollment data and follow-up information. A system of the future in use today, OTIS incorporates a strategy for economic development with spin-off benefits to the state or region.

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Manpower Research Visibility is prepared by the American Vocational Association under a one-year contract (#82-11-71-37) with the Division of Research and Development Utilization of the Office of Research and Development within the Manpower Administration of the U.S. Department of Labor. MRV attempts to present manpower research and developmental projects conducted or sponsored by the U.S. Department of Labor and their implications in a form that will encourage Vocational-Technical, Practical Arts, and Adult Education and Manpower Trainers to put the findings to use in instruction, guidance, evaluation, curriculum, and operations.

Donald L. Rathbun, director of Manpower Research Information for AVA serves as editor of MRV. He is aided in the preparation of these columns by Miss Anne Burwell, research assistant. They will attempt to involve the readership through opinion polls, letters to the editor, reports from the field, and other forms of dialogue with practitioners. Your participation is requested. The editorial comments contained in MRV are those of the editor and do not necessarily represent the views or policies of the American Vocational Association nor the Department of Labor (Manpower Administration, or any of the departments, offices, or divisions).

frankly speaking

By Donald L. Rathbun
Editor, MRV

Opinion Poll

The MRV opinion and comment reply cards are starting to come in and we want to thank those that have responded. Your comments, opinions, and suggestions are greatly appreciated and will be helpful in making these columns more responsive to your needs and interests.

We again appeal personally and professionally to those who have not completed the postage-paid card at the end of the MRV section for guidance and direction based on your expertise and requirements. *Let us hear from you this month!*

Inadequate Data Adversely Affect The Voc-Tech Delivery System

Many of our concerns for vocational education were crystallized in late October at the National Conference for Trade and Industrial Education held in Washington (actually in Arlington, Va.). Much of the discussion centered on the changes that in all probability will take place as education moves to meet the needs of more people.

As the discussion groups struggled to develop goals and objectives for the direction and transition of T & I education during the coming decade, most of them emphasized concern about the lack of suitable local data on which to base planning, forecast manpower needs, or make program decisions. The comments and convictions of the participants applied to all areas of vocational, technical, and adult education.

Many of the participants and speakers gave voice to the common frustration of trying to match effectively local skill training with labor market needs. Many of the data available from state or local Employment Security sources are in-

sufficient for comprehensive local or area manpower needs forecasting. Likewise, the Bureau of Labor Statistics gears most of its reporting to an audience other than vocational-technical practitioners.

Utilizing special grants or under their own funding, many training institutions and school systems have developed and implemented their own data collection systems. Others have apparently been able to secure data for planning requirements by working with state and local Employment Security offices.

The importance of and necessity for local relevant manpower data speaks for itself. Our emphasis here is to point out that *help is available*. Since the 1963 Vocational Education Act a major topic of manpower research has been data collection and utilization. The 1968 MDTA amendments provided additional impetus for further study by requiring the establishment of a labor market information service. You the practitioner do not have to start from ground zero; you can obtain and improve upon available material. A number of states, perhaps your own, have developed systems or guidelines.

In this issue MRV reports on the Occupational Training Information System (OTIS) developed and used in Oklahoma. This does not imply that it is the only system available. We call your attention to the *Human Resources Management System* (HRMS), developed by the Ozarks Regional Commission/U.S. Department of Commerce. Both of these systems have local application. Pennsylvania has also developed a comprehensive systems approach to state-local program planning, and there are other labor market information system projects under Office of Research and Development/U.S. Department of Labor contracts.

The National Planning Association (NPA), under contract with the U.S. Office of Education, recently conducted three regional conferences on the use of manpower and demographic information in vocational education program planning. This contract is an outgrowth of an NPA study titled "Manpower Needs for National Goals in the 1970s" conducted for the Manpower Administration. The final report

of the Office of Education project, dated April 1971, presents major issues of manpower planning and also user-oriented information in the form of guidelines on developing enrollment objectives, instruction manuals, and data gathering techniques and forms.

We understand that a number of states are reviewing some of the above mentioned systems and procedures prior to designing or implementing their own manpower information systems. An initial step for the local practitioner or the local administrator would be to contact the state director of vocational, technical and adult education to determine what systems or procedural information is available from his office. Baseline data may also be obtained from the 1970 Census.

The collection of appropriate data is only a beginning step in the process, which requires analysis of those data and the implications they hold for human resources development. The required expertise is not always available within the institution or school system. We suggest that whatever is attempted should be done in cooperation with Employment Security, and that agency should be called upon to assist if possible in data analysis. This analysis, coupled with placement and follow-up information, will provide the basis for sounder program decision making.

When the analysis shows that the continuance of a program is not justified, the program should be phased out. Equally important, when a need is evidenced or anticipated, a new program should be phased in. The speed and efficiency with which this "phasing" takes place indicates the responsiveness of the delivery system.

Recognition of the deficiency of relevant information about manpower needs within the community and within each program area is the first step in improving the responsiveness of the delivery system. A planned program or system of data gathering and analysis is the second. Curriculum development, program improvement, and course content upgrading must logically follow. When these steps are taken, we will be closer to meeting labor market requirements and the needs of the community.

manpower reports

Occupational Training Information System

At first glance this report may seem to hold little relevance for the vocational-technical and practical arts practitioner. It may also appear that its contents, a strategy for economic development and a decision making model for proper program mix, are primarily the concern of legislators, state departments of vocational-technical education, and other similar groups or agencies. While the success or failure of program planning rests largely on state agencies, specifically the State Department of Vocational-Technical Education (SDVTE), data collection, manpower training, and the spin-offs of a healthy, growing economy of a state or region directly involve the individual practitioner.

Because of the growing awareness of a need for more and better jobs for all people, a need for a

program that attracts investments which generate new and expanding activities, a need for current and reliable labor market data, and the vital role of vocational-technical practitioners in preparing skilled manpower, MRV presents this report on Oklahoma's Occupational Training Information System.

This system is a new and innovative approach to the responsive development of human resources in step with shifting labor market conditions. Interwoven as it is with an economic development thrust, fully refined and implemented, the system may serve as a model for the introduction of similar efforts in other states. This approach puts the funding where the needs are; is anything more relevant to effective vocational education and the vocational practitioner?

THE Occupational Training Information System (OTIS) takes into account the necessary relationships between economic development and the availability of trained human resources. Its primary use is in a statewide occupational training information system as part of a planned manpower development program.

OTIS provides an improved and expanded data base for making appropriate changes in state plans for vocational education, patterns of occupational program offerings, and enrollment on local levels. The system makes it possible to obtain detailed information on a state's public and private occupational programs. The enrollments in these programs are matched with data on manpower needs. U.S. Office of Education Program Codes and the *Dictionary of Occupational Titles* are used to facilitate the match.

The Oklahoma State Department of Vocational and Technical Education and the Oklahoma Industrial Development and Park Department, in conjunction with the U.S. Department of Labor/Manpower Administration, Ozarks Regional Commission, and the Research Foundation of Oklahoma State University sponsored the initiation and the development of OTIS. Dr. Pat Choate and George Appley were mainly responsible for the development of the OTIS concept. Many agencies within the state, including the Employment Security Commission, made significant contributions on both state and local levels.

Oklahoma state leaders became convinced that the only way manpower training and related agencies could make their maximum contribution would be through intensive efforts based on statewide manpower planning. As in other states this recognition of need led to federal and state legislation and the formation of coordinating committees and commissions.

In 1967 two studies were completed that provided the impetus for the development of OTIS; one by a nationally known systems management service and the other by Oklahoma State University. These studies sought to identify and sequence activities that would establish a flexible occupational training system to meet current and projected state needs for skilled manpower. The primary recommendation of these studies, the establishment of a system to provide continuous detailed information for policy and operational decisions on a statewide basis, was based on the following objectives:

1—to replace isolated and sporadic research with a systematic and continuous demonstration and evaluation of skilled manpower preparation and utilization.

2—to develop interagency coordination and commitment based on the premise of greater returns to all.

3—to establish new data linkages in place of inadequate information collection and processing for some manpower policy decisions.

4—to state objective criteria and guidelines for determining the relevance of vocational and technical programs to replace subjective standards wherever possible.

By mid-1968 a strategy for economic development based on the development of a skilled labor force had unfolded. Cooperative support was provided by the State Employment Security Commission and the Association of Private Schools. Preliminary funding for the new system came from the Department of Vocational-Technical Education and the Industrial Development and Park Department. Full funding was realized in March 1969 through grants from the U.S. Department of Labor and the Ozarks Regional Commission.

A Decision Making Model. The interdependent components or subsystems of OTIS are: manpower supply and follow-up, demand, cost, underdeveloped human resources, sociopolitical involvements, and the interfacing of supply and demand. The ultimate aim of the system is to effect appropriate changes in the occupational training program mix so that training and labor market needs are met. These system components form a basic framework for a decision making model.

Through continual refinement of data, it will be possible to estimate accurately the consequences of alternative choices; i.e., the costs of each alternative and the degree to which each alternative will be responsive to the desired objectives of the system.

In developing and implementing OTIS it was necessary to become introspective and objectively analyze enrollments and funding of federally supported programs. A comparison with national and contiguous state averages spotlighted out-of-balance program expenditures and program emphasis. As an example, T&I programs received at that time the largest share of expenditures nationwide, while Oklahoma was only expending approximately 17 percent of its total occupational training program budget on T & I. When labor market needs, as well as the overall strategy for economic development, were taken into account the record shows that funding was improved and proportionate enrollment increases followed.

Manpower Supply and Follow-Up. The manpower supply and follow-up subsystem of OTIS describes and involves the gathering and subsequent modification of manpower supply estimates to reflect only those graduates expected to be "available for employment." It also includes the gathering and utilization of followup information on graduates.

OTIS enables the collection of "supply," or training, information. The factors relating to supply are identified as functions, activities, and variables, and these hold the key to the responsiveness of the delivery system. Functions were designated as management and guidance, and activities as recruitment, selection, training, and placement. Each of the functions and activities experiences changes in the measures of the functions and activities which indicate the state of the system at any given time.

The system (OTIS) focuses on product evaluation (i.e., graduates of various components of the delivery system) but does not neglect student interest or aptitudes. The systematic approach to the examination of recruitment, selection, training, and placement activities in light of outcomes provides a sound base to allow more meaningful services to students and trainees.

RECRUITMENT ACTIVITY begins with the identification of the target population and terminates with the obtaining of the desired number of applicants. It includes informing the target population of training benefits and the makeup of the training program. Identifying specific members of the population, such as unemployed or underemployed who are eligible for training, and motivating them to participate are also vital parts of the recruiting activity.

SELECTION ACTIVITY is initiated when the applicants apply, continues through the screening process, and ends with the qualified applicants' being accepted for training.

TRAINING ACTIVITY begins when the trainee enters the instructional program and is completed when he successfully completes the program or drops out.

PLACEMENT ACTIVITY starts when the training graduate first seeks employment in a job related to his training and terminates when he becomes employed.

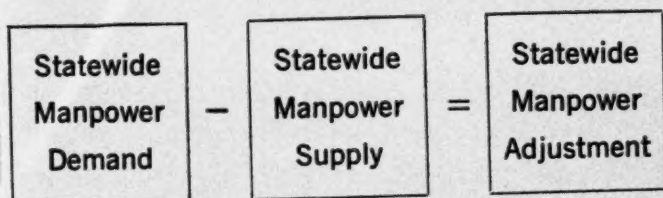
The two basic functions of the subsystem, manpower supply and follow-up, are **GUIDANCE** and **MANAGEMENT**. Vocational guidance is designed to assist the potential student or trainee to formulate educational and vocational goals, to develop a plan to achieve those goals, and to monitor/manage performance as he moves toward reaching them. This function is performed continuously throughout every activity of the manpower supply and follow-up subsystem.

Management as a function concerns the entire subsystem and presupposes the well known roles necessary to the continuous operation of an organization. The management function is concerned with the organization as a whole, whereas the guidance function relates to persons within the subsystem.

The total statewide *manpower supply* is defined by OTIS as the measured or projected number of skilled persons available during the period under consideration, categorized by specific skill or skill cluster, and listed by geographic location. Supply determination is a complex task, but this should not dissuade those responsible for decision making in the vocational and technical education system from making every effort to secure as factual and reliable data as is economically feasible.

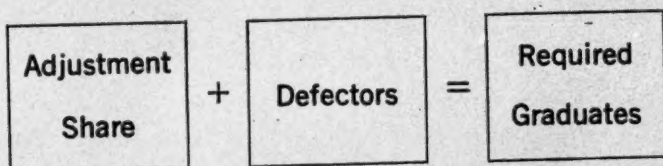
Variables affecting supply are:

1. The *adjustment* necessary to meet labor market needs of the state. It is determined by any differential that exists between manpower demand and supply. It is the **NET MANPOWER** that must be supplied.

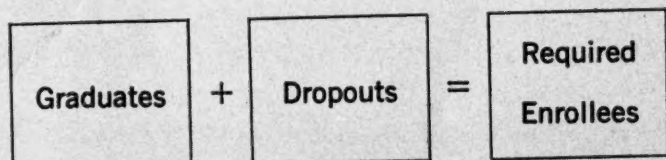


2. An *adjustment share* must be allocated for each supply source (school or skill program) in the state which provides training in the skill being considered. This assures a proper number of persons trained in the skills or occupations needed to balance demand and supply. A decision of this type is rendered by a committee with representation from major sources of manpower supply within the state.

3. *Graduates and defectors*—Many training graduates leave the state, enter the Armed Forces, continue in school, or do not accept employment. This group of graduates is called defectors and represents a short-run loss, therefore the projected number of graduates must exceed the adjustment share by an amount equal to the number of forecasted defectors.



4. *Enrollees and dropouts*—Enrollees who fail to complete the training are defined as dropouts. The number of enrollees required to satisfy the graduate requirements must, therefore, take into account the attrition from the program.



Since dropout rates directly affect quantity, quality, and cost of training, this variable requires close and continuous scrutiny to assist in realistic evaluations of the program.

The universe of supply in any state includes (a) full-time public programs, (b) adult public programs, (c) MDTA programs, (d) private schools, (e) government and industrial OJT programs, (f) Employment Security registrants, (g) selected nonfederally reimbursed vocational-technical programs, and (h) any other sources of supply. Primarily these data are secured by questionnaire from teachers and students.

(Editor's note: The lack of uniformity among schools and programs and the impact that private school training has on supply produce indisputable evidence of need for: (1) a uniform state information system and (2) licensing of private schools, including regulations governing performance standards and statistical reporting to the state's information system or vocational-technical department.)

To determine the probable number of public and private school graduates who would actually be available for employment, a forecast technique was used.

From the Vocational and Technical Education annual report by the U.S. Office of Education, national averages of behavior patterns of vocational-technical graduates were determined (grads placed in related occupations, placed/unrelated, not placed/entered service, unemployed, etc.). These findings were compared with data from a three-year follow-up study conducted by the Oklahoma Research Coordinating unit at Oklahoma State University. Since the data from the two sources differed, an average of the two sets was taken by region within the state. The averages were compared with each OTIS cycle report and consequently validity increased with each cycling of OTIS.

Manpower Demand. Vocational and technical manpower training can only make maximum contributions to the development of human resources and economic growth when manpower demand data are continually collected and analyzed. OTIS meets this criterion.

Demand data were initially generated from detailed studies of almost 300 occupations by the State Employment Security Commission, and other ESC reports. Prior to Cycle II, however, no systematic data collection procedure existed; therefore, as part of the OTIS development, a concentrated survey of the manufacturing sector was conducted.

The state was divided into 11 geographic regions corresponding closely with area school districts. An attempt was made to contact personally all manufacturing firms. *The surveyors were primarily vocational-technical instructors and supervisors who were carefully selected because of their future responsibility for industrial coordination.* These key persons remained in their districts after the survey and continued to contribute to the school-industrial liaison. *All area vocational-technical schools now have industrial training coordinators.*

(Editor's note: The importance of school-industry/business liaison cannot be overemphasized. Most administrators, especially in community colleges and comprehensive high schools, do not recognize the absolute necessity of this function to develop proper rapport, gain realistic insight into labor market needs, and obtain mutual support. Education and industry/-business converse but do not communicate!)

Of the 2,964 firms contacted only one percent refused to release demand data. According to the *Standard Industrial Classification Code*, 64 percent were considered manufacturing firms. The data were widely disseminated throughout the state and utilized by vocational-technical schools, community colleges, industrial development, the State Department of Vocational-Technical Education, and other concerned state and local officials and agencies.

Training costs are determined by the State Department of Vocational and Technical Education's fiscal officer and are used to determine program mix, i.e. a

proportionate distribution of resources among occupational service areas. Cost data are analyzed in conjunction with student follow-up information and supply and demand data to determine program effectiveness.

Underdeveloped Human Resources. One of the main objectives of OTIS is to gather data on the number of unemployed, underemployed, and disadvantaged who are trainable but are not currently enrolled in occupational programs. Information collection on the disadvantaged was incorporated into OTIS during Cycle II and now provides identification, skill level to which they might be trained, and the program which might best meet their needs.

Reports based on the analysis of these data are disseminated to coordinating agencies, the State Department of Vocational and Technical Education, and government officials.

Sociopolitical Involvement. Sociopolitical involvement implies in OTIS the cooperation, coordination, and commitments necessary for successful interagency actions demanded by OTIS. It also emphasizes the recognition that data collection and analysis can be meaningless without the support of key decision makers in all relevant agencies at all levels of government.

Of special relevance to vocational-technical education is the universal problem of identifying and controlling the determining factors that are essential to effective political coordination. The relations between and within public agencies vary, therefore the relative success of a system, such as OTIS, utilizing vocational-technical education, is contingent upon the establishment and exercise of interagency and intra-agency commitments and dependencies.

Interfacing Supply and Demand. The interfacing of supply and demand data reveals anticipated differences between the two, and holds implications for vocational-technical program planning. This matching or balancing technique was based on research by Emanuel Weinstein, occupational analyst for the U.S. Office of Education, and others. It relates the *U.S. Office of Education Instruction Codes* to the *Dictionary of Occupational Titles* in a document titled *Vocational Education and Occupations*, sponsored by USOE and the Manpower Administration.

The OTIS final report provides forms and instructions to accomplish the interfacing. It also describes how it was handled in Oklahoma. Results were disseminated in terms of projected differentials of supply and demand to the director of the State Department of Vocational and Technical Education, the State Board of Vocational and Technical Education, local school boards, and government officials.

Analysis of Data. The Occupational Training Information System provides data on which to base decisions that change the state plan for vocational and technical education. These changes are reflected in

new patterns of program offerings and enrollments at the local level.

This MRV report is too brief to present all of the exemplary analyses of data considered relevant to program mix based on experience in Oklahoma. After suggesting the exercise of caution in examining the interface tables and demand data because figures on job availability are estimates and only predict general trends, the analysis write-up goes on, in a firm and positive manner, to quote figures and percentages and note trends on a statewide basis.

As an example, following is an excerpt from the analysis of manpower supply and demand data section: "Demand for workers in the distributive occupation groups is expected to be notable during the coming year. Total need for the six job classifications surveyed in this category should exceed 4,100. Demand for sales clerks, at 2,120, is the largest of all occupations in the study. The need for commodities salespersons ranked fourth in the same comparison, with an expected demand for more than 1,400 workers in this field. Net demand after supply for the distributive group should stand at about 1,800, to rank second among the seven occupational groups."

The analysis loses its specificity when scaled down to a regional report. Example: "Demand for many occupations in the Northeast Region should be significant in the near future. The need for salespersons, health workers, office employees and some trade and industrial personnel is expected to be notable. To be more specific, sales clerk, nurse's aide, etc., etc., . . . are all expected to be in significant demand."

(Editor's note: There is a lack of tangible information at the regional or local level since Employment Security is prevented by legislation from releasing any data that would reveal the identity of a specific firm. In addition, projections of demand for small areas are hazardous because unstable variables can drastically alter any local forecast and are especially susceptible to errors of reporting and/or the methodology of data collection. At any rate, all this emphasizes the importance of labor market experience as determined from placement and follow-up data analysis.)

Follow-Up Data. Follow-up data from both public and private schools were analyzed. The 13,775 public school occupational students who reported during Cycle II that they would graduate in May 1969 were mailed questionnaires during the fall of 1969. Usable responses were 34.5 percent; not usable, 6.3 percent; 59.2 percent did not respond.

A second follow-up was conducted in the fall of 1969 using teachers as the source. Teachers and students tended to disagree on many points. Teachers frequently listed the full-time employment of former students as being "in related field," while the same former students tended to classify their employment "in nonrelated field." Teachers also tended to report a student "in school" more often than corresponding responses from the students.

The report points out that final conclusions must not be drawn from a single cycle analysis alone, and that longitudinal or continuing studies are the only way to get a realistic and reliable picture of job-related graduate behavior. Some trends or preliminary findings follow.

About 25 percent of enrollees drop out of training in their final year (including one-year programs). (Editor's note: Dropout rates are frequently quoted; however, they may have little meaning other than "the student did not graduate.") Analysis of OTIS data shows little significant difference between the median salaries of graduates and nongraduates with the exception of those in technical programs. Technical grads earned approximately \$2,000 per year more than technical nongraduates. In other words, a training program "dropout" frequently quits training to take a job for which the program prepared him.

Questionnaire terms, such as "related job," must be defined for uniform response. More private school grads tend to leave the state than public school grads. About 16 percent of public school grads continued education in fields not related to their earlier training. Only 28 percent of public school grads found employment in the field or related field for which they were trained; 16 percent were either placed in nonrelated fields or found only part-time employment. Another 9 percent did not find jobs at all. The final report draws certain preliminary trend conclusions on the above as well as numerous other findings; however, significance cannot be fully determined until more compatible cycle (longitudinal) data are available.

Some relevant factors of the exemplary analysis of trade and industrial education are: The dropout rate of 58 percent is the same as in technical education. The dropout rates for these two divisions are higher than for all other divisions. At the time the report was written, the cost of meeting public education's part in training T & I workers was estimated at \$1,031,000 per year. The participation rate of the disadvantaged and handicapped was the highest reported in all categories.

Impact of OTIS. The system has been utilized in many ways, some not foreseen. The data have provided a base for many special reports and studies, doctoral dissertations, and master's theses in the field of manpower planning. The system has provided the "start" for the matching of manpower and job opportunity.

The data have been used to provide inputs for program funding procedures based on need. Example:

Service Divisions	Projected Program Starts In State Plan	
	1969-70	1970-71
Health	15	76
Home Economics (Useful)	8	6
Business and Office	0	27

OTIS data identified programs with high concentrations of disadvantaged persons in an attempt to allocate resources as outlined by the 1968 Vocational Education Amendments. The information was also helpful in evaluating local programs and identifying new areas of employment. Special programs were *immediately* mobilized to meet the critical needs of specific industries. (Editor's note: Oklahoma has a special capability at the state level to respond immediately to training needs; few states recognize the importance of this as an economic development strategy.)

Local schools have used the data to determine the feasibility of new programs. Follow-up data have been used for accreditation purposes. Significantly, demand data are being used to recruit students into programs where employment benefits and "pay off" to the economy are the greatest.

Oklahoma's industrial development has been enhanced by the ability of the system to provide information to and about established industries, to attract new industries, promote industrial/business expansion, create more and better jobs, and to help private industries locate other firms that have qualified manpower to provide support for their activities. An estimate at the time the report was written indicated that over \$500,000 worth of contracts for subassemblies which otherwise would have gone out of state have been signed in-state.

Future of OTIS. The future of OTIS looks bright. Responsibility for continued development and implementation has been assigned to the Research, Planning, and Evaluation Division of SDVTE. All contributing and cooperating agencies have agreed to this organization and many contribute for full funding.

Vocational instructors and supervisors are involved cooperatively statewide in the collection of demand data, and industrial coordinators continue to update data and improve relations with the industrial sector.

(Editor's note: We can report from personal observation and conversations with Oklahoma state and local officials, industrialists, and trainees, that OTIS has had and continues to have tremendous impact on the entire state. This is one of the finest examples of a cooperative effort involving local, state, regional, and federal activities and funding. Not all of the spin-offs of the system have yet been assessed. The benefits of OTIS could eventually permeate every level of society in that area. *Occupational Training Information System*—final report, complete with System documentation, by Paul V. Braden, James L. Harris, and Krishan K. Paul, June 30, 1970, Oklahoma State University, is recommended to everyone concerned with or responsible for: quality responsive vocational-technical education, economic development, human resources development, and manpower utilization.)

See Sources of Information at the end of this section for ordering instructions.

Career Ladders in the Foodservice Industry

IN JANUARY 1971 the National Restaurant Association published, under the above title, the results of "A Study of Career Ladders and Manpower Development for Non-Management Personnel in the Foodservice Industry."

The major study was conducted by the School of Hotel Administration at Cornell University in cooperation with the National Restaurant Association under contract with the Manpower Administration of the U.S. Department of Labor.

Aside from findings and recommendations, the importance of the study centers on the concept, applicable to many occupational areas, that "no longer are employees, particularly minority groups, satisfied with only a JOB." Employment must provide opportunities for productive, satisfying and remunerative work with advancement potential. The outcome of this realization is displayed in a nonmanagement career system.

The National Restaurant Association estimates that approximately 250,000 new workers are needed each year for the foodservice industry in nonmanagement jobs alone, just to keep up with attrition and the growing demands of the expanding industry.

In the past, emphasis has been primarily on higher and middle management levels of foodservice employment. Colleges, universities, community colleges, and technical institutes have made a good attempt to supply the needed management personnel. Not until recently has much been done to alert potential foodservice workers to the opportunities open at lower than managerial levels.

Better services to the public can only be provided through a large scale effort to attract more manpower to the foodservice industry. The industry is so diverse that it can accommodate a broad variety of workers, and therefore a large number of unemployed and disadvantaged with some assistance and training can find employment in this field.

The federal government, the National Restaurant Association, the American Hotel and Motel Association, and others have expressed growing awareness and concern about the inadequacy of service in the foodservice industry. Many training centers have been established to relieve some of the trained labor shortages, but these have only met with moderate success since they are mainly for cooks, bakers, and waitresses. Other occupational areas within the foodservice industry have been neglected.

The foodservice industry, the fourth largest in the United States (\$30 billion annual sales), employing over 2.4 million people, could grow to 4 million employees with a potential of \$75 billion annual sales

by the end of the 1970s. ("Food Away from Home," *Fortune*, June 1969.) The industry has studied its guests and patrons for years but has neglected a study of its employees and their duties/responsibilities, despite the obvious job opportunities and need for personnel.

In the past manpower needs could be met at all levels from the surplus of available labor in most geographic areas. More recently the demand for fast, quality service, more technical application, increased standards of sanitation and skill competency, and the labor drain into other competing industries have deteriorated the situation to the point that now training programs *must* be initiated or expanded for all levels of foodservice employment.

Training alone is not the entire answer; recruiting at nonmanagement levels must be stepped up. In studying the difficulty in attracting employees, it became apparent that recruitment efforts were limited mainly because most jobs were more or less dead-end. To overcome this undesirable aspect definite avenues for promotion offering social and economic incentives in the form of a career system are necessary.

Job Corps and MDTA programs offered additional insights into the difficulties of securing enough trained manpower for the foodservice industries. One study (*Report on the Conference on Food Service Industry Manpower and Education*, National Restaurant Association, February 1967, page 46) of 5,292 MDTA trainees who completed institutional training found that less than 50 percent were employed in the industry when follow-up contacts were made. This study further relates that the major contributing reasons for the instability of employment and the failure to hold graduates were inadequate wages, hours of employment, and in some cases difficulty of securing transportation to the place of employment. Frequently the graduates reported that better promotional opportunities and higher wages were available to them outside of the industry.

A National Manpower Survey (*Eating and Drinking Places Industry*, Industry Manpower Survey No. 115, U.S. Dept. of Labor/Manpower Administration, March 1969) contacted 3,800 individual establishments employing over 220,000 persons and found that the voluntary quit rate and the hiring rate were both higher than those in manufacturing industries. The voluntary quit rate of 7 percent per month and the accession rate of 10.4 percent per month extended to annual rates would indicate that of the 124 percent of new employees hired each year, 84 percent leave voluntarily. (Involuntary dismissal not included.)

These are not statistics for an industry to be proud of, and they emphasize the magnitude of the problem facing the foodservice industry. The excessive cost of training and the inefficiency generated by high turnover rates dictate changes to enhance the attractiveness of employment in foodservice. These changes will center on offering careers instead of jobs. To this end, and to remove the stigma of past exploitation by using better communications and image projection, the study set out to reach the following investigative objectives:

1—To identify the skill areas, physical requirements, educational level and experience prerequisites of the foodservice job families below the managerial level in various segments of the foodservice industry.

2—To discern current recruitment practices, training, promotion opportunities, training costs, and turnover rates existing in the field.

3—To develop a model career progression system that would promote optimal horizontal and vertical advancement for nonmanagement personnel consistent with reducing human and financial costs presently being incurred.

Nonmanagement personnel were defined as those who do not have policy-making authority within the organizational structure in which they are employed. Other distinctions were made, however. Some felt that salaried personnel should be classed as management, as well as those in supervisory positions. For the purpose of the study the first definition provided the greatest latitude and flexibility and was therefore used throughout the investigation.

Methodology

Over 300 foodservice employees working at a variety of jobs were contacted. Some of the job classifications included were: waiters-waitresses, busboys-busgirls, counter servers, dishwashers-potwashers, kitchen helpers-porters, food processing employees, cooks (below executive chef level), pantry men-women, cashiers, bartenders, storeroom attendants, and sandwich makers.

Personal contact with 18 organizations (not a representative sample of the entire industry) provided employer information. The organizations represented were restaurant chains, fast food organizations, hotel and motel corporations, industrial feeding firms, airline foodservice units, and cafeteria chains (all high volume). All areas of the country were covered.

Over 100 former employees of various organizations in the preceding categories were contacted by phone. A review of all previous foodservice industry research, conducted and published as a separate report by the School of Hotel Administration, Cornell University, provides a base for this study.

Key Findings

Results and conclusions of the foodservice industry study provided the following findings and recommen-

dations, appearing here in abbreviated form. (All apply to nonmanagement positions.)

1. No distinct physical requirements or attributes are required for employment.

2. Success is not contingent upon specific educational attainment. Positions of increased responsibility may call for good speaking, comprehension, and in some cases reading abilities, but most job entry level positions do not.

3. Where a company has a training program, foodservice experience is not required for job entry.

4. Labor turnover is abnormally high. (Part-time employment inflates figures; however, rate is still much higher than other industries.)

5. Labor turnover occurs most frequently within the first three months of employment.

6. No accurate system of measurement was found that defines or identifies the variables that would allow quantification of the economic and social costs of the high labor turnover rate.

7. Recruitment and retention can be effective where current employees assist.

8. Training in most organizations is not formalized, and is infrequent and poorly communicated to employees.

9. Promotion opportunities are not structured or visible within the organization or the industry.

10. Psychological work environment is as important as physical working conditions.

11. The industry is easily entered and easily left.

12. The industry generally presents an image of low wages, minimal benefits, nonuniform standards, obscure career potential, lack of proper on-the-job training, and lack of upward mobility where economic and social needs can be met.

Recommendations

1. Employment standards must be developed to attract and retain educable and willing workers.

2. Closer cooperation among industry, educational institutions, public institutions, and local, state, and national associations must develop for improved industry image. Labor resource centers should be developed. The industry should promote a definite career progression whereby employees could satisfy social and economic needs.

3. Physical working conditions must be improved.

4. Training and development of human relations should permeate the entire organization to foster a psychological work atmosphere conducive to respect for human dignity, work efficiency, job satisfaction, and motivation.

5. Individual expectation should be determined prior to hiring and general and job related orientation must be conducted to articulate organizational procedures, relationships, and details of the position.

6. Formalized training programs must be developed. Purposes and benefits must be continuously

communicated to trainees and reinforced at appropriate training levels.

7. Training conditions should be conducive to learning, and training should be allowed to function uninterrupted.

8. A career ladder should be developed by each organization to offer visible credibility to career potential and display tangible benefits of training to allow for formulating and attaining personal goals.

9. Wage and fringe benefits must be increased to a level competitive with other industries to allow the employee to reach his economic goals.

10. A means to measure investment in human resources should be devised, to quantify the value of an employee to the organization as well as to measure labor turnover costs.

Summary

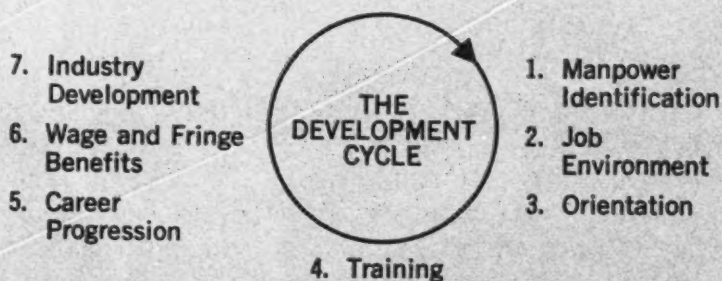
Compared to most other industries, the foodservice industry is far behind in attempting to develop the vast reservoir of nonmanagement personnel. Mostly these difficulties stem from shortsightedness and lack of sensitivity by persons who could develop the necessary training programs and implement the career models.

Economic factors also play an important role. One company official interviewed summed it up with the statement, "I think some people in management are reluctant to make a commitment for a training program because they can't see an immediate return on the company's income statement."

Actually training can lead to the mutual reinforcement of financial profit and social profit to the extent that synergy can be achieved. Synergy is the evolution of a result greater than the simple sum of the constituent elements.



The development cycle which can result from synergy can be viewed as:



A career ladder system for the foodservice industry was graphically illustrated by four function progression charts and an integrated career progression model for

a foodservice facility. The functions of foodservice occupations are: Support, Production, Control, and Service. Each chart depicts possible upward mobility opportunities from job entry positions (job ladders), as well as possibilities to cross-train and enter other horizontal jobs (job lattices) within the same function area; or, as illustrated in the integrated career progression model, entrance into other function areas is also possible.

As an example, the position of food runner falls in the Control function at job entry level. Horizontal possibilities are: in the Service function as functional setup person, busboy, or barboy; in the Support function in one of three washer positions or as silver polisher; or in the Production function in vegetable preparation. Each function area has avenues for advancement opportunities leading to key positions. No job becomes a dead-end job. Each job in all function areas relates to a numerical scale that places each in perspective to every other position by degrees of responsibility. Both horizontal and vertical movement possibilities are clearly illustrated.

The career progression model can only be applied if a comprehensive training program is utilized by the organization and the attendant factors of manpower identification, job environment, orientation, wages and fringe benefits, and organization and industry progress together. Only through concurrent development will career progression have meaning, credibility, and effectiveness. (For function progression charts and the *Integrated Career Progression Model*, see original study.)

See Sources of Information at the end of this section for ordering instructions.

Home Market Workers

Women [can be designated] as labor market workers or home market workers. Home market work differs from labor market work in several important respects.

First, there are no monetary rewards for tasks performed in the home; second, there are no job descriptions or universal standards of achievement for the production of home goods; third, the value of goods and services produced in the home is not included in the national income if the woman performs them herself, but is included if they are performed by a substitute and then only at the lowest wage level; fourth, the home market worker reduces her responsibility if she performs well, while the labor market measures success by increasing in responsibility.

These differences create complex problems of prestige and achievement.—SUSAN R. ORDEN AND NORMAN M. BRADBURN, "Working Wives and Marriage Happiness," *American Journal of Sociology*, January 1969.

HEART Report on Household Employment

THIS REPORT covers an outreach program to provide training in household employment, an occupation that has generally been overlooked. The project has significance for vocational education in the area of home economics, as well as gainful, adult education, and (from an organizational standpoint) numerous other potential manpower training programs.

The Household Employment Association for Re-evaluation and Training (HEART) is a nonprofit agency established in Philadelphia, Pa., in 1967 to upgrade the occupation of household employment. *The HEART Report: A Household Employment Training, Counseling, Job Development and Placement Program* was prepared under contract with the Manpower Administration, U.S. Department of Labor. The director of the project was Mrs. Uvelia S. A. Bowen.

The need for HEART is easily recognized when one realizes that household employment is the third largest occupation for women in this country. Statistics show that 66 percent of this occupational group earn less than \$1,200 per year. In addition to low wages generally, the members of this group are not afforded protection of the Fair Labor Standards Act, workmen's compensation, unemployment insurance, or benefits such as sick leave.

HEART grew out of an awareness of the problem and a determination to do something about it. Mrs. Bowen, founder and director, with the assistance of an advisory council and a board of directors (including household employees and employers) operate HEART. The agency was funded as an Experimental and Demonstration Project by the U.S. Department of Labor/Manpower Administration and the U.S. Department of Health, Education, and Welfare from March 15, 1968, to March 31, 1971. The Manpower Training Department, Department of Labor and Industry, Commonwealth of Pennsylvania provided training allowances.

Training was conducted in a four-story dwelling renovated by volunteer help. Training cycles varied from 6 to 11 weeks, and the trainees ranged in age from 30 to 66, with one 18-year-old. The agency has graduated 72 women and placed 60. At the time the project report was written (March 31, 1971) 63 were permanently employed.

The report discusses selection of agency personnel. It was found that academic credentials are not necessarily good qualifications for work in such a program. The staff members need to have skill and know-how, but even more important is the ability to relate easily to trainees.

In-service training for the staff consisted of the job interview to outline objectives and job assignment, orientation, individual conferences, staff meetings to get an overview of the task, formal lectures and demonstrations, and on-site visits and educational conferences to provide continuous current training experiences. The HEART approach involves the entire staff in all segments of the agency in an effort to provide oneness of purpose and create a cooperative staff alliance.

The HEART recruitment of employee-trainees aims at women who have worked at the occupation and are unemployed, women presently underemployed, women presently underemployed in the occupation, and women who might be attracted to the occupation but are working in other areas because of its low status.

The standard methods of recruitment (press, radio, television) were utilized, as well as paid advertising in local newspapers. Graduates of the program were often employed as recruiters, and social agencies, churches, and community groups also assisted.

Deterrents to recruitment for the HEART project are many. The low status of the occupation is a major block in recruiting efforts. There is much hostility from applicants who have graduated from other training programs and can't find jobs and from applicants who have dropped out of other training programs. During 1970, more than 55 percent of the applicants were dropouts from health service careers who were disappointed with the jobs assigned to them. The Manpower Training Act sets eligibility requirements, such as head-of-household restrictions and a low maximum income allowance, which eliminate many potential trainees.

Trainees for the HEART project are selected on the basis of their attitude towards the occupation and the world of work and their physical capability to do the work. They are selected through interviews, group social orientation, and evaluation of health exams to determine suitability for training and employment potential.

In the training program of the HEART project, emphasis is placed on the personal, professional, and social development of each participant to develop a feeling of self-esteem, personal pride, and significance of her occupation.

An effort is also made to encourage interest in community resources through on-site visits and cultural enrichment trips. Visits are made to state offices to learn about services to the aged, welfare, consumer education, etc., and department stores and grocery

stores are also visited. There are trips to museums and theaters, as well.

An integral part of the HEART training program is skills development. It was found that a six-week training cycle is sufficient to prepare the trainees for their jobs. Communication skills and remedial education are stressed, as well as home health care and sanitation; cleaning, laundry and home management; food preparation and service; personal money management; and salary and fringe benefits. These skills are taught through lectures and practice in field work or "laboratory" (home of an employer-supervisor).

The trainees spend the first three weeks in intensive training at the agency. The remainder of training time is spent in formal instruction at the agency three days a week and two days a week in field work. The field work is geared to help trainees translate theory into practice.

Group counseling (in the form of small seminars) and individual counseling give the trainees an opportunity to discuss the knowledge acquired in the various courses of instruction. The agency continues its counseling services after graduation as a supportive agent for both employee and employer and provides post-training experiences and more skill training.

The HEART project has a job development program which places each trainee who has graduated from the agency in a job. The trainees are evaluated by the staff, taking into consideration their particular needs and job interests. Potential employers are carefully screened and interviewed. If the job arrangement satisfies both parties, the trainee is placed in the job.

Although the HEART training program is rigorous, the staff found much evidence of a positive change in self-awareness, work habits, attitude toward occupation, and skill level at the end of the training period.

In addition to providing information on the training and counseling programs, the HEART report contains appendices with news release forms, seminar discussion plans, program agenda, and case histories of interest to educators.

The future goals of the project include establishing a national training center, preparing a comprehensive training plan for employers and employees, working with schools to incorporate housekeeping techniques in the curriculum for all students, increasing community education conferences and seminars, and developing day care services and post-graduate training.

See Sources of Information at the end of this section for ordering instructions.

occupation reports

Assisting Manpower in Optometry

MRV presents this report in recognition of the growing concerns, actions, and adjustments taking place in our society as reflections of sociopolitical change. This is an example of the type of study which is designed with the following objectives in mind: to provide better service by the occupation, to help eliminate professional manpower shortage, to better understand employment patterns and career ladders within a professional or subprofessional health service occupation, to generate skilled jobs through the en-

couragement to restructure an occupational service area, and to determine type and extent of training necessary if these objectives are to be met.

This report will perhaps raise more questions than it answers as the practitioner applies concepts of the study to his occupational area, but that is precisely the stimulation we wish to generate—to cause one to pause and weigh what he is doing in light of recognized need and what others (programs and institutions) are doing.

THE OPTOMETRIC CENTER of New York conducted this *National Study of Assisting Manpower in Optometry* under contract with the Office of Research and Development—Manpower Administration of the U.S. Department of Labor. The current number, duties, education and training of ancillary optometric personnel, and the projected need for such employees, are

investigated in the study. The type of formal training program required is described and career ladders for technical occupations in optometry are postulated.

In the 1960s, the increasing shortage of professional manpower in health services, including optometry and ophthalmology, became obvious. Enactment of major health care programs such as Medicaid brought

more people to eye care practitioners for the first time. Manpower in eye care professions has been further strained by the fact that those applying under health care program benefits have seven times as much visual disability as those in higher economic groups, therefore more care is required.

At present a need for a 50 percent increase in patient care is clearly justified. The researchers cite the 1967 calculations of Birchard and Elliott showing a projected need for 35,105 licensed optometrists by 1980—or an increase of 100 percent in the 1970s. Considering attrition rates and present and projected graduation rates from schools of optometry, it is generally accepted that the predicted need cannot be met. The projected shortage can be alleviated, however, by using ancillary personnel.

The researchers examined the time expenditures and economic factors involved in initiating a system using ancillary personnel and determined that the eye care professional, as well as society as a whole, would benefit from such a system. Cited was a conceptual model set up by Birchard and Elliott showing that the average time a professional allots to a complete case study is 64 minutes and that the average yearly number of case studies performed by one optometrist is 1,372 (30 case studies per week, 46 working weeks per year). It is estimated that the optometrist can save one-third of the time he spends with each patient by the use of an ancillary person; therefore three patients can be seen in two hours where previously two were seen. Thus, the number of patients being cared for can be increased by 50 percent, with no additional time expenditure on the part of the professional.

Economic Considerations

Economic considerations also must be taken into account. The average optometrist earns \$456 net per week in a 46-week year. Thirty full visual analyses are probably done each week; thus \$15.20 net is earned for each case study.

If an ancillary aide is used, 50 percent more cases will be handled and the income will increase to \$22.80 net per hour. Of the additional net income (\$7.62), if \$4.20 per hour is paid to the assistant and he sees thirty patients per week as does the optometrist, his salary is approximately \$6,300 per year. In addition, there are 10 hours per week left over for office duties (based on a 40 hour week), and if the reasonable wage for office duties of \$2.50 per hour is paid, *the net aggregate yearly income of the assistant becomes \$7,450.* The optometrist nets \$3.40 per hour extra, or \$102 extra per week. Assuming a 46-week work year, *the optometrist can increase his income by \$4,692 per year. The cost to the patient does not increase by the addition of an ancillary person.*

Even with need and economic and time factors taken into account, such a system can only be success-

ful if: (1) an optometrist can accept an assistant functioning at a level lower than his but higher than most of his present aides; (2) there is a need of a 50 percent increase in utilization of the optometrist; (3) there is success in recruiting trainees from all socioeconomic groups who, when trained, will accept ancillary positions; and (4) the patient accepts this new type of eye care.

Evidence from a questionnaire used in the study indicates that the optometrists' attitudes toward using assistants are generally favorable. Of those responding to the questionnaire 83 percent felt that the "use of appropriately trained assistants is not an infringement on the integrity of the optometric license."

To successfully employ low-income persons (high school dropouts, welfare recipients, etc.), the researchers suggest that a pilot project could demonstrate the feasibility of such a program. A pilot project could also test whether patients would accept eye care by assistants. Less than 10 percent of the optometrists who responded to the questionnaire felt that their patients would resent optometric assistants.

Visual Examination

Most of the visual tests performed in optometry are done in precise sequence with the same instrumentation; a high level of skill is needed, but little understanding is required. The assistant can often perform many of the tests without providing any independent thinking to decide where, how and why a test should or should not be performed. The researchers set up a model case by dividing a complete visual examination into its components in an effort to demonstrate which procedures could be transferred to an assistant.

In taking a case history, the majority of competent eye practitioners ask questions relating to general health status, ocular status, symptoms, occupation and avocation relating to specific use of eyes, and the chief complaint or reason for the visit. An alternative to the optometrist taking the whole case history is a check list administered by an assistant and reviewed briefly by the optometrist.

A lensometer tests the power of lenses and is used to test new lenses returning from the laboratory and also to check prescriptions of old lenses brought in by a patient. Although the instrument is complicated, an assistant could be trained to take over its operation.

Measurements of visual acuity (V.A.)—the ability to see characters of a specific size at a specified distance—are easy to make and can be administered by ancillary personnel. In some cases additional acuity measurements requiring professional judgment (pin hole V.A., red lens V.A., head tilt V.A.) should be performed by the professional. The researchers do not recommend the downward transfer of this skill in the first model, but do recommend it after the assistant has demonstrated his mastery of other tasks.

The techniques of external examination are: gross

observation of the external parts of the eye; pursuit movements (ability to follow smoothly and efficiently a small target moving at a constant velocity); saccadic movements (ability to change fixation from one point to another accurately and effortlessly); CNP (near point of convergence, the ability to follow a small target as it approaches one's nose); P.D. measurements (distance between the pupils of the two eyes focused at the far and the customary near working distance); the pupillary reflexes (the change in pupil size in response to a light stimulus); regurgitation of the lower lacrimal system (putting pressure on the lacrimal sac and noting the outflow into the eye). Since complex professional judgments are involved in some of these procedures, the optometrist should perform these tests, in the opinion of the researchers.

The keratometer is a very precise instrument which uses reflections from the cornea to measure the curvature (or power) of the cornea and to identify astigmatism. An assistant can be taught to develop the skill to use the keratometer without understanding the theory or optics involved and this task was transferred downward in the model.

The professional examiner views the internal structures of the eye with an ophthalmoscope to uncover ocular pathologies and abnormalities and any evidence of systemic body disorders such as anemia and leukemia. This task requires the skill of the professional and could not be transferred to his assistant.

A retinoscope is an instrument which a skilled observer can use to quantitatively ascertain the degree of refractive error present in the eye. Its proper use also requires a high degree of skill but not a complete understanding of theory. The researchers suggest that an assistant with experience and proven ability could perform the task, but they did not transfer it to the assistant in the model.

The subjective examination includes a multiple of simple-to-administer tests based on the patient's preference of two lens combination choices. Eventual downward transfer of a portion of the testing is considered feasible, but the researchers did not do so in their model.

Procedures testing the ability of the two eyes to function efficiently together involve the use of prisms to determine the heterophorias (positions the eyes will assume when binocular fusion is suspended) at a distance and near. Most practitioners do the case analysis mentally during the course of the entire examination. (Editor's note: In one of the examination models six minutes were allotted for specific tests, therefore it is assumed that these tests remain in the domain of the primary professional.)

In the opinion of the researchers the patient explanation section of an examination should rest entirely with the professional, as should any examination time necessary if a patient returns with complaints.

Under present conditions the time spent by the professional with the patient during frame selection

could be allocated to the ancillary person, with the professional just verifying the choice.

When the prescription is sent from the laboratory back to the doctor's office, the lenses and frame must be checked to make sure they are what was ordered, and they must be adjusted to the patient's face. These tasks could be transferred to the assistant with the optometrist just okaying the procedure.

The electronic tonometer is an instrument used to record the pressure within the eye. A trained ancillary person can learn to perform the test efficiently on all patients over 35 years old with the optometrist evaluating and interpreting the findings. (This test is generally only performed on older patients).

Although a detailed visual field study is not routinely performed by most optometrists, it can be performed on every patient over age 35 with a minimum time expenditure by using one of the commercially available screeners. An assistant can learn to use the screener, and a detailed field study can be performed by the optometrist if any abnormality appears.

The researchers' model examination allowed no time for visual skills testing, color vision testing, or slit lamp evaluation, because these are not routine tests. However, it was noted that an assistant can be taught to administer the tests quite easily and satisfactorily.

The researchers distributed a questionnaire to a random sample of practicing optometrists in the United States. The questionnaire was designed to probe the optometrist's social background (questions relating to age, race, religion, income, education, etc.), his practice background (years in practice, number and type of associate practitioners if any, racial characteristics of patients, degree of specialization, etc.), attitudinal background (feeling towards national health insurance, group practice, ancillary personnel and what they should and should not be able to do, etc.), and detailed probing regarding what the optometrist's present most important aide performs and what he is not allowed to perform.

Results and Conclusions

The responses to the questionnaires were tabulated to determine which duties optometric assistants are currently allowed to perform and to demonstrate the potential of increased use of assistants if they were appropriately trained and available.

Based on the analysis of the data which were obtained, the project investigators' conclusions are: (1) The use of assisting personnel in optometric practice is apparently widespread, but the education and system of utilization are not, as yet, formalized. (2) The extent of present utilization of ancillary personnel tends to be in routine secretarial, office, and dispensing functions, rather than technical functions in the performance and delivery of professional services. (3) The attitudes of the optometrists tend to be broadly positive and open with regard to use of appropriately

trained ancillary personnel and with regard to a system of formal recognition and systematic utilization. (4) The capacity to use assisting personnel is positively related to the extent of the optometric practice and income, extent of group associations, and largely independent of other factors.

Training Recommended

The researchers recommend, among other things, that a system be developed for the formalized training and recognition of assisting personnel in optometric practice. They recommend a 15-month training program, subdivided into three 5-month terms. Each of the terms would consist of 18 weeks of instruction, one week of exams, and two weeks of vacation. Students would receive 20 hours per week of supervised clinical instruction.

The tentative training program includes the following courses in the first term: English composition, typewriting, speech, applied office practice procedures and bookkeeping, records management and control, introduction to vision science (ocular anatomy, geometric optics, physiology), basic math, optometric terminology, clinical observation, ophthalmic optics (lensometry and prescription writing), and counseling.

The tentative curriculum for the second term includes: introduction to health care and health care systems, vision science (physiological optics), ophthalmic optics (frame styling and selection), patient psychology, personal hygiene, optometric procedures, instrumentation care and maintenance, typewriting II, seminar and counseling, and introduction to case history taking.

The courses recommended for the third term curriculum are: clinic, contact lens theory and procedures, visual training and tonometry, testing of visual skills and color vision, introduction to microbiology, and seminar and counseling.

An optimum environmental setting for such a training program is specified by the researchers, as well as the predicted derived benefits of such a program. If a pilot training program proved successful and were extended into other economic areas, the eventual benefits in terms of increased availability of quality

eye care and the impact on unemployment and underemployment would be significant.

At the present time there are several programs in the planning stages: The Southern College of Optometry has announced plans for a new program to train the optometric technician beginning mid-1971, with clinical experience to be acquired in the same environment as for students in the professional program. The School of Optometry, University of Alabama in Birmingham, has announced a similar intention as its professional program is phased into development. Another newly established program offering an A.S. degree has been formalized by Fisher Junior College in coordination with Massachusetts College of Optometry. A one-year optometric paraprofessional program is anticipated to begin in fall 1971 with joint cooperation between the St. Louis Optometric Center and a St. Louis junior college.

In the last few years, a very small group of optometric assistant programs has been developed at Miami-Dade Junior College (Fla.), Merritt Junior College (Oakland, Calif.), Sheboygan School of Vocational, Technical and Adult Education (Wisconsin), Brewster Adult Technical School (Tampa, Fla.), Itasca State Junior College (Grand Rapids, Minn.), and Tri-County Technical Education Center (Pendleton, S. C.). These have been in existence for too short a time to assess their impact or comment on their success.

Another existing program is provided through the Optometric Extension Program Foundation. It has had an ongoing program of incidental regional education during the past ten years for optometric assistants. These personnel have been the products of irregular training, for the most part secured from the optometrist for whom they worked. No formal system of certification or recognition for skills attainment exists.

The American Optometric Association, in 1968, established the Consultant Committee on Optometric Technicians for the purposes of reviewing, evaluating, and certifying various programs and curricula for the education and training of ancillary optometric personnel. Further, this body has the responsibility of developing a registry of existing and future personnel.

See Sources of Information at the end of this section for ordering instructions.

Sources of information

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Knowledges Commonly Useful in Twelve Allied Health Occupations. Report No. 25. Final Report, 107 pages, (ERIC #ED100958, price MF—50¢, HC—\$5.45).

The Identification of Common Courses in Paramedical Education, Arizona State University, 172 pages, (ERIC #ED010190, price MF—75¢, HC—\$8.70).

Employment and Earnings, States and Areas 1939-69, Bureau of Labor Statistics #1370-7, 614 pages. GPO, \$4.50 per copy.

This comprehensive and essential reference volume of employment, hours, earnings, graphic analysis and special summaries provides background for community and plant location planning, labor cost analysis, economic forecasting, manpower training, career counseling and more. Monthly reports are also available from GPO at an annual subscription rate of \$10.00.

DOCUMENT SOURCES

ERIC—Education Resources Information Center, EDRS, c/o Leasco Information Products, P.O. Drawer O, Bethesda, Maryland 20014. Copies priced according to the number of pages. MF price in the listing is for microfiche; HC price is for paper copies. Send remittance with order directly to ERIC-EDRS and specify the accession number (ED plus a 6-digit number) given in the listing. For a complete listing of services, special subject searches, and other products, order "How To Use ERIC," Catalog No. HE 5.212: 12037-C, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (price 35 cents).

GPO—Government Printing Office. Send orders directly to Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, with remittance for specified amount.

ORD/MA—Office of Research and Development, Manpower Administration, 1111 20th St., N.W., Washington, D.C. 20210. Single copies free upon request.

NATIONAL REFERRAL CENTER—Science and Technology Div., Library of Congress, Washington, D.C. 20540. Catalog of information agencies and directories of information sources on broad

subject areas. Write with subject specified for free referral to agencies having information on the subject.

NTIS—National Technical Information Service, Operations Division, 5285 Port Royal Road, Springfield, Virginia 22151. Copies of reports with this designation may be purchased for \$3.00 for reports with 300 or less pages, \$6.00 for those with 301-600 pages, \$9.00 for those with 601-900 pages, or 95 cents for a microfiche copy. Send remittance with order directly to the NTIS and specify the accession number (AD or PB plus a 6-digit number) given in the listing.

RESEARCH COORDINATING UNITS—50 states. Write State Dept. of Education, RCU, for ongoing reports and projects in each state.

SCIENCE INFORMATION EXCHANGE—1730 M St., N.W., Washington, D.C. 20036. Abstracts of research projects planned or in progress per year are available for a fee of \$50 for the first 100 abstracts and \$10 for every 100 abstracts thereafter.

NATIONAL ADVISORY COUNCIL—425 - 13th St., N.W., Suite 852, Washington, D.C., Reports of projects of State Advisory Councils.

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